DOCUMENT RESUME

ED 177 164 SP 014 980

AUTHOR Dennis, Lyman C., II; Janken, Janice K.
TITLE The Relationship Between Nursing Education and Performance: A Critical Review. Nurse Planning Information Series 8.
INSTITUTION Medicus Systems Corp., Washington, D.C.
SPONS AGENCY Health Resources Administration (DHEW/PHS), Hyattsville, Md. Div. of Nursing.
REPORT NO HRA-79-38
PUB DATE Feb 79
CONTRACT 231-77-0121
NOTE 58p.
AVAILABLE FROM National Technical Information Service, 5285 Port Royal Rd., Springfield, Va. 22161 ($5.25 hardcopy; $3.00 microfiche)
LANGUAGE English; Spanish

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Academic Education; Certification; *Degrees (Titles); Employment Opportunities; Medical Education; *Nurses; *Performance Factors; *Professional Training; Program Evaluation

ABSTRACT

This monograph examines the effect that type of education has on nursing performance. It explores the issue of whether or not nurses educated in diploma, baccalaureate, and associate degree programs differ in their practice of nursing and, if so, in what ways. A proposed change in the training of nurses is noted, namely to reorganize nursing into two groups: professional nurses and technical nurses. The title of professional nurse would be reserved for graduates of baccalaureate programs. The two categories of nurses would be held responsible for different competencies. (JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED177164

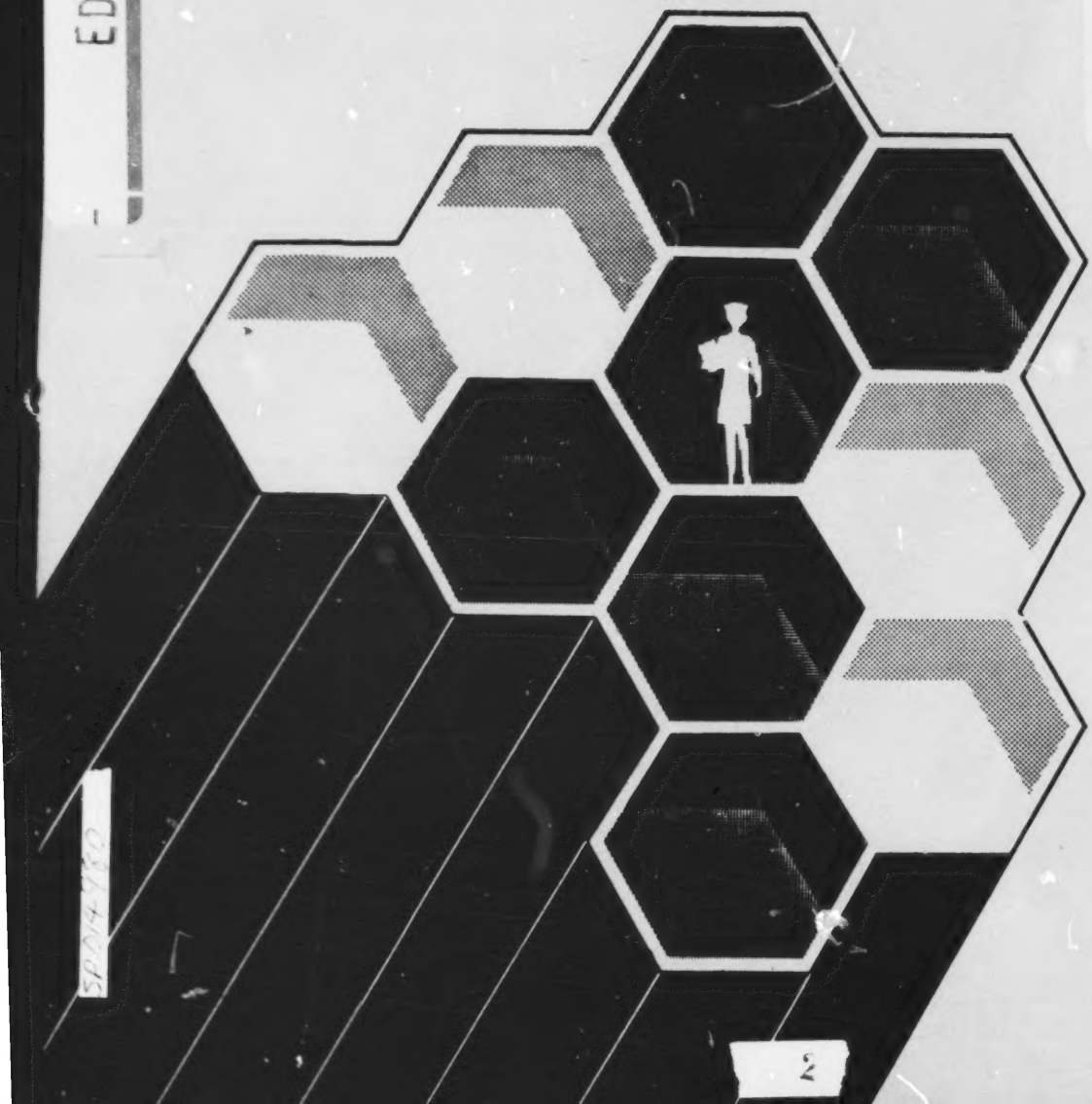
8

Nurse Planning Information Series

The Relationship Between Nursing Education and Performance: A Critical Review

U.S. DEPARTMENT OF HEALTH EDUCATION & WELFARE NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY



U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Health Resources Administration

The Nurse Planning Information Series, sponsored by the Division of Nursing in the Bureau of Health Manpower, has been designated as a special series to support health manpower planning and specifically to meet the information needs of the nursing component of the National Health Planning Information Center.

Three other series published by the Center are Health Planning Methods and Technology, Health Planning Information, and Health Planning Bibliography. All of these were designed to respond to information needs of the Bureau of Health Planning.

The documents included in all series are being added to the Center's data files and will be made available from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161. A listing of titles of these publications can be obtained from the National Health Planning Information Center.

Other volumes in the Nurse Planning Information Series are:

No. 1 Accountability: Its Meaning and Its Relevance to the Health Care Field

No. 2 Nursing Involvement in the Health Planning Process

No. 3 The Problem-Oriented System: A Literature Review

No. 4 Patient Classification Systems in Nursing: A Description and Analysis

No. 5 Nurse Practitioners and the Expanded Role of the Nurse: A Bibliography

No. 6 Comparative Analysis of Four Manpower Nursing Requirements Models

No. 7 Nursing-Related Data Sources: 1979 Edition

The Relationship Between Nursing Education and Performance: A Critical Review

Lyman C. Dennis II, Ph.D.
and
Janice K. Janken, R.N., M.S.N.
Medicus Systems Corporation
Washington, D.C.

February 1979

U.S. Department of Health, Education, and Welfare
Public Health Service
Health Resources Administration
Bureau of Health Manpower
Division of Nursing
Hyattsville, Maryland 20782

DHEW Publication No. HRA 79-38
HRP-0500901

FOREWORD

This monograph focuses on an issue of central concern to the nursing profession as well as to other health care planners -- the relationship between education and nursing performance. The monograph brings together recent research findings comparing the practice patterns of nurses educated in diploma, baccalaureate, and associate degree programs. The data will be very useful to planners of future educational programs in nursing.

This publication is the eighth volume in the Nurse Planning Information Series. The series is composed of several selected monographs and bibliographies relevant to health planning. The other volumes are listed on the inside front cover.

The nursing component of the National Health Planning Information Center provides health planners with a centralized, comprehensive source of information on nurse manpower planning to facilitate an improved health care delivery system in the United States. The component acquires, screens, synthesizes, disseminates, and makes available specialized documentary material on nursing, as well as methodological information on a wide variety of topics relevant to health planning and resources development.

Jessie M. Scott
Assistant Surgeon General
Director
Division of Nursing

ACKNOWLEDGEMENTS

This monograph was made possible by Health Resources Administration Contract 231-77-0121 from the Division of Nursing, Bureau of Health Manpower, Department of Health, Education, and Welfare. We are indebted to Eugene Levine, Ph.D., Deputy Director, Division of Manpower Analysis, for his complete support of our endeavor and encouragement for its publication. We wish to acknowledge Mary Linn Hamilton, R.N., M.P.H., for participating in the development of the initial draft of this paper. Also, we express our appreciation to Evelyn Moses and Virginia Saba whose specific comments contributed to the monograph's final revision.

PREFACE

This monograph examines the effect that type of education has on nursing performance. In particular, it explores the issue of whether or not nurses educated in diploma, baccalaureate, and associate degree programs differ in their practice of nursing and, if so, in what ways.

Concern with the effect that type of education has on nursing performance is not new. However, in recent years, the topic has received more widespread attention. In part, this expanded interest can be attributed to the growing complexity of providing nursing care. As nursing practice has become more complex, the profession has been confronted with the problem of how to deal satisfactorily with the many patients in need of its services. This has led to considering the value of dividing nursing practice into two career roles based upon educational preparation. In general, nurses prepared in baccalaureate programs would be held responsible for the more complex aspects of nursing care while nurses educated in diploma and associate degree programs would be held accountable for the more standardized components.

While concern with the effect of education on nursing performance can largely be attributed to the increasing complexity of providing care, this issue has been confounded by controversy as to which type of educational program produces the "best" nurse. In preparing this monograph, we have tried to maintain a sense of objectivity toward each type of educational program and the performance of its graduates. An obvious pitfall of this aim has been that much of the research done to compare the practice of variously educated nurses has been done in the context of rating which type of nurse performs a given nursing function best. Nonetheless, we found it interesting and stimulating to see how nurses educated in different programs approach the same situation. Moreover, we now feel it evident that no program type is successful in preparing

nurses to deal equally effectively with all nursing situations. That is, some programs are more successful than others in preparing nurses for some kinds of nursing situations.

Thus, the purpose of this monograph is to compare the similarities and differences in the practice of nurses educated in different types of programs. We begin by briefly describing the evolution of nursing education and then proceed to reviewing research studies which have addressed the relationship between nursing education and performance. In addition, we have attempted to point out some of the limitations of the research studies so that readers might further speculate on the implications of their findings.

Lyman C. Dennis II, Ph.D.

Janice K. Janken, R.N., M.S.N.

TABLE OF CONTENTS

		Page
FOREWORD		iii
ACKNOWLEDGEMENTS		iv
PREFACE		v
LIST OF TABLES		viii
SECTION I	INTRODUCTION	1
SECTION II	HISTORICAL PERSPECTIVE	5
SECTION III	RELATIONSHIP BETWEEN NURSING EDUCATION AND PRACTICE	13
	Supervisory Personnel Ratings	14
	Performance in Nursing Care Situations	19
	Performance on State Board Exams	25
	Types of Employment	28
	Attitudes Toward Practice	31
	Comments on Study Designs	36
	Key Findings and Competencies	37
SECTION IV	SUMMARY	41
BIBLIOGRAPHY		43

LIST OF TABLES

		Page
TABLE 1	Numbers of Basic Professional Nurse Programs and Their Admissions, Graduates, and Enrollments, 1977	1
TABLE 2	Type of Nursing Position by Educational Background Five Years After Graduation	29
TABLE 3	Employer of Nurses by Educational Background Five Years After Graduation	30

SECTION I

INTRODUCTION

Currently, professional nurses are prepared in three distinct types of educational programs. There are diploma programs based in hospitals which require two to three years of study. There are baccalaureate programs based in senior colleges and universities which demand four years of study. And there are associate degree programs typically based in junior colleges which require two years of study. Table 1 presents the 1977 statistics on the number of the three programs and their respective admissions, graduations, and enrollments.

Table 1--Number of Basic Professional Nurse Programs and Their Admissions, Graduations, and Enrollments, 1977

Type of Program	Number of Programs	Admissions	Graduations	Enrollments
Diploma	367	22,243	18,014	52,858
Baccalaureate	344	36,670	23,452	101,430
Associate Degree	645	53,610	36,289	91,102
TOTAL	1,356	112,523	77,755	245,390

While diploma, baccalaureate, and associate degree programs differ both in where they are based and in length of study, graduates of all three programs take identical state licensing exams to ensure that they have achieved the minimum competency level to safely practice nursing. Furthermore, upon passing these exams, the graduates of all three types of programs are accorded the title "professional nurse," and legally are held for having at their command equivalent nursing knowledge.

Members of the nursing profession now are considering the feasibility of altering this practice and differentiating more precisely among nurses based upon educational preparation. The

proposed change is to reorganize nursing into two groups: professional nurses and technical nurses. Under this plan, the title of professional nurse would be reserved for graduates of baccalaureate programs while diploma and associate degree graduates would be called technical nurses. (Actually, the name for the second group has not been decided. However, the term "technical nurse" is commonly used in the literature and therefore, will be used in this paper.) A major rationale offered in support of this reorganization is that the scope of nursing practice has expanded so greatly that there is a need for two categories of nurse practitioners. Proponents of this position assert that a distinction can and should be made between professional and technical nursing practice.

While the plan to differentiate between professional and technical nurses is receiving strong support within nursing, there are many who oppose it. One arguement cited frequently against the proposed change in qualification as a professional nurse is that there is a lack of research evidence to support the idea that baccalaureate graduates practice nursing any differently than diploma or associate degree graduates. Proponents of this position contend that unless it can be demonstrated that graduates from different types of educational programs practice nursing differently, no distinction should be made between them.

Thus, there is controversy over whether or not nursing should reorganize into the two groups of professional and technical nurses. Moreover, an issue of paramount importance to this controversy is whether or not type of educational preparation has a significant effect on nursing performance. With this in mind, the purpose of this paper is to review studies that consider the effects of educational preparation on nursing performance and to discuss some tentative implications of these findings. Furthermore, in order to understand the direction of many of the studies, it is helpful to know how nursing came to have three basic levels of educational programs. Therefore, prior to presenting the findings

of studies concerned with the effects of education and nursing performance, a historical perspective on the development of nursing education in the United States is provided.

SECTION II

HISTORICAL PERSPECTIVE

The fact that professional nurses can be prepared in any one of three types of educational programs that vary in length from two to four years is paradoxical. Indeed, it is difficult to understand how such varied educational programs could attempt to produce identical nurse practitioners. While the graduates of all three programs are now legally viewed as possessing equivalent nursing knowledge, an examination of the development of these programs shows that each was developed for unique purposes. In other words, as each new type of nursing educational program was conceived, it was envisioned to produce a new type of nurse practitioner who, in turn, would meet unique health care needs. Thus, the contemporary situation of attempting to differentiate professional and technical nursing practice is not at odds with what originally was intended.

The oldest type of nursing education is the diploma program, the first schools being established in the latter part of the 19th century. These schools were established by hospitals with the educational pattern taking the form of an apprenticeship (Davis, 1975). The emergence of nursing education as an apprenticeship sponsored by hospitals can partly be understood by viewing it in the social context in which it was developed. At that time, women for the most part were not permitted in institutions of higher learning (Davis, 1975). Therefore, it was easier to establish nursing education as an apprenticeship in hospitals than it would have been to establish it as an academic pursuit in universities. In addition, hospitals were experiencing a shortage of qualified nursing personnel. Consequently, it worked to their advantage to have nursing students serve as apprentices, a role in which they could perform much of nursing's work. To this end, it became common practice to establish schools of nursing in association with new hospitals (Davis, 1975).

The first diploma programs required a one-year apprenticeship. However, soon the length of the programs was extended to two years and then to three years. By 1900, the customary nursing educational pattern was the diploma program requiring three years of study (Rines, 1977). This trend continued into the 1960's.

The first baccalaureate programs were established around the turn of the century. The rationale for establishing these early baccalaureate programs was not to prepare basic nurse practitioners; rather the aim of the first baccalaureate programs was to prepare nurse educators for diploma programs and nurse administrators for hospitals (Ohlson, 1977).

The early baccalaureate program was no more than a diploma program with the additional requirement of a number of college courses; that is, nursing students received blanket credits from the university for their courses taken in the diploma program. Not many years later, however, baccalaureate programs were established in universities, though they did not develop significantly until after World War II.

Thus, during the first half of the twentieth century, professional nurses were prepared in only two types of educational programs: diploma and baccalaureate; however, as mentioned, the diploma program was by far the most commonly attended type of school. Despite the popularity of diploma schools, questions concerning the ability of these programs to consistently prepare quality nurse practitioners soon arose. Early studies repeatedly pointed out that educational programs based in hospitals where the main concern was providing patient care produced nurses with varying levels of clinical competence.

For example, the first large scale study of nursing education was completed in 1912. Conducted by the Federal Bureau of Education, the survey showed that most of the over 1,000 nursing schools in the sample were mediocre with respect to quality of education (Nutting, 1912). This mediocrity was attributed to the orientation

of hospitals to meet their immediate needs for coverage of patient load rather than to serve the educational requirements of their nursing students. Similarly, the 1923 Goldmark Report pointed out the variable and often poor quality of nursing education in hospital schools. Again the blame was placed on the dual responsibility of hospitals for both patient service and nursing education. If conflict arose between these two responsibilities, patient service usually took precedence as it was the predominant concern of the hospital. On the basis of its findings, the Goldmark Report recommended that the responsibility of educating nurses be removed from hospitals and be placed in the academic setting. It recommended a two year program to prepare nurse technicians. Moreover, it suggested that the four year programs should emphasize preparing public health nurses and nurse educators.

Although dissatisfaction with the unreliable quality of hospital based nursing education was prevalent, no major changes in the educational patterns of preparing nurses came until World War II. World War II brought an increased demand for nurses which in turn precipitated experimentation with new ways of preparing nurses. These new ways of preparing nurses paved the way for changes that would be made in nursing education after the war.

First, the concept of practical nursing was introduced. During the war, practical nurse preparation consisted largely of the individual's personal experiences in caring for the sick (Rines, 1977). Hospitals employed practical nurses to perform much of the routine nonskilled work previously done by nurses. After the war, practical nurse education was developed more fully by requiring a year of systematic study. Graduates of this type of program were and are required to take a practical nurse licensing exam to ensure minimal competency.

Also, in the attempt to ease the nurse shortage problem posed by the war, nursing experimented with accelerating the education of its students. This experimentation was stimulated largely by

Congress which passed legislation allowing for the creation of what popularly is known as the Cadet Nurse Corps (Rines, 1977). The act demanded that any program it funded must be no longer than two-and-a-half years. After the war, it was this experience with the Cadet Nurse Corps that made it apparent that quality nurses could be educated in less than three years.

Following World War II, the high demand for numbers of nurses did not abate. This continuing demand can be attributed largely to the expansion of biomedical sciences and the use of third party payments, both factors serving to bring more persons to health care agencies (Davis, 1975). While the demand for nurses remained great, at the same time, post war studies continued to point out weaknesses in nursing education. For example, both the Brown Report (1948) and the Bridgeman Report (1953) reaffirmed that hospital based nursing education was unsound and recommended that nursing education be placed within the framework of higher education.

Cognizant of both the nursing shortage and the problems in nursing education, Montag, in 1951, suggested a method of preparation for a new type of nurse. Proceeding on the assumptions that nursing education should take place in colleges, that the complexity of nursing care had developed to the extent that there was a need for both professional and technical levels of nursing practice, and that students could be prepared for technical nursing in less than the traditional three years, Montag proposed educating what could be known as technical nurses (Bensman, 1977). Under her direction, pilot associate degree nursing programs were established. The intent of these programs was to prepare technical nurses who would work under the supervision of professional nurses and attend to the intermediate, or "technical," functions of nursing care (Bensman, 1977). Despite the intent of associate degree programs to prepare a new type of worker, the graduates of

these programs were required to take the same state licensing exams as diploma and baccalaureate graduates in order to ensure at least minimal competency.

Thus, beginning in 1952, nurses were being prepared in three types of educational programs, each of which had been conceived in a different light. Yet, graduates of all three programs were submitted to identical licensing exams which in turn bestowed upon them the same title of professional nurse and the same legal responsibilities.

In spite of the early suggestions that all nurse education should occur in institutions of higher learning and that there could and should be a distinction between professional and technical nursing practice, progress toward these ends has been slow. It was not until 1965 that the American Nurses' Association took an official stand on the issue. The well-known Position Paper put forth the following:

> "Education for those who work in nursing should take place in institutions of learning within the general system of education . . . minimum preparation for beginning professional nursing at the present time should be baccalaureate degree education in nursing . . . minimum preparation for beginning technical nursing practice at the present time should be associate degree education in nursing." (ANA, 1965.)

Since the publication of the 1965 ANA Position Paper, nursing has seen a major shift in sites of practitioner education. In 1966, there were 218 associate degree, 797 diploma, and 210 baccalaureate degree programs (ANA, 1977). In 1976, the distribution had changed to 642 associate degree, 390 diploma, and 341 baccalaureate degree programs (Johnson, 1977). These statistics show an increase in baccalaureate programs, almost a tripling of associate degree programs, and a decline of about 50 percent in diploma programs over a ten year period. Thus, the academic setting is now the major site of nursing education.

While the nursing profession has seen relative success in meeting its objective of placing nursing education within the framework of collegiate education, it has experienced only limited acceptance of its official position that a distinction should be made between professionally and technically prepared nurses. Nonetheless, the American Nurses Association continues to advocate that there is a difference in practice between professional and technical nurses. Furthermore, strong efforts on the part of many nurses have been and are being directed toward clearly specifying the differences in competencies between professional and technical nurses. These efforts differ in specifics, but a number of differentiating characteristics are commonly cited.

First, professional and technical nurses are described to differ in the types of nursing problems they identify (for example, Bailey et al. 1966; Johnson, 1966; Schlotfeldt, 1977). Technical nurses ideally are prepared to identify specific, concrete, frequently occurring problems. In addition, the problems most likely to be identified by technical nurses are thought to be of a physiological nature. In contrast, professional nurses ideally are prepared to recognize a wider range of problems, including abstract as well as concrete, uncommon as well as common, and complex as well as more specific ones. Moreover, the professional nurse is perceived to more likely recognize psychosocial problems in addition to those of a physiological nature.

A second characteristic commonly cited to differentiate between professional and technical nurses is their problem-solving capacity (for example, Bailey, et al., 1966; Johnson, 1966; Tschudin, 1964; Schlotfeldt, 1977). Technical nurses are described as having at their command a wide range of established interventions which can be utilized to solve problems. In contrast, professional nurses are not only aware of known-effective interventions but also are able to modify and innovate ways of solving problems. In other words, professional nurses' means of solving problems are less restricted than those of technical nurses.

Another distinquishing characteristic offered to illustrate the difference between professional and technical nurses is their varying abilities to assess the current nursing knowledge base (for example, Schlotfeldt, 1978; Tschudin, 1964). Technical nurses are to have at their command a good grasp of relevant and current nursing knowledge. Professional nurses are to go beyond this both by being able to recognize gaps in the knowledge base currently in use and appreciating the value of research in advancing nursing science.

Professional and technical nurses are also perceived to differ in their leadership abilities (for example, Matheny, 1967). Technical nurses are depicted as having a leadership role but in general this role is restricted to the technical aspects of nursing care. In contrast, professional nurses are portrayed as assuming a leadership role in nursing's collaborations with other health care disciplines, such as with physicians.

Finally, a quality frequently cited to differentiate between professional and technical nurses is their variation in attitudes toward practice (for example, Johnson, 1966; Schlotfeldt, 1977). While this characteristic is difficult to measure, professional nurses are viewed to place more value on self-directed, autonomous nursing practice than do technical nurses. In other words, technical nurses are seen to lean more heavily upon the directions of others to guide their nursing practice.

These then are some of the more commonly cited differences between professional and technical nurses. However, it must be remembered that the existence of these variations in differently prepared nurses is a point of contention within nursing circles. Some nurses charge that educators in the different types of educational programs only say that they are preparing different types of nurses, but in reality, the graduates are prepared to assume the same nursing roles. Others claim that the different educational programs prepare their students for different roles but employers

require the graduates to perform the same duties, a situation which prevents the difference in practice competencies from surfacing.

Nonetheless, nursing is moving in the direction of distinquishing between professional and technical nursing practice. At the 1978 American Nurses' Association convention, resolutions were passed ensuring that two categories of nursing practice will be clearly identified by 1980 and that by 1985 the minimum preparation for entry into professional nursing practice will be the baccalaureate degree in nursing. The direction that nursing is taking raises the question of the effects of different educational programs on nursing performance. The next section addresses this question.

SECTION III

RELATIONSHIP BETWEEN NURSING EDUCATION AND PRACTICE

The struggle that nursing is experiencing in determining if and how varying educational patterns affect work performance is not unique. Ideally, there should be a strong positive relationship between the amount and quality of education and the work performance that ensues. However, this relationship does not always hold. For example, several economic studies of the relationship between academic achievement and work performance have concluded that the more educated are more successful than the less educated (Becker, 1964; Hanock, 1976; Thurow, 1967); but, in contrast, Highriter (1969) reported that a review of studies in engineering and theology found a lack of correlation between the two concepts. Similarly, Peterson (1956) concluded that the length and quality of internships and residencies in medical education were not significantly related to the quality of general practice that followed. As will be shown, nursing research on the effects of education on job performance closely parallels these conflicting findings.

The inability to consistently demonstrate a strong positive relationship between the amount and quality of education and job performance has not resulted in relinquishing the idea that the relationship exists. Instead, the discrepant findings have been explained in terms of nonacademic variables which have been observed to contribute as much if not more to job performance. For example, Gheselli (1969) showed that success in managerial positions was not only associated with increased education but also with such personal attributes as initiative, self-assurance, supervisory ability, intelligence, and perceived occupational level. Similarly, nursing studies tend to conclude that even if the relationship between education and performance is not readily apparent, the relationship does exist; that is, the performance of nurses in practice is seen to be dependent upon a number of variables in

addition to type of education. These confounding variables include:

1. Personal characteristics of students who enter the system of nursing education.

2. Level of academic scholarship of nursing students regardless of type of program in which they are enrolled.

3. Demands and characteristics of the practice setting (such as mode of nursing care, morale of staff, leadership).

Admittedly, it is a difficult task to sort out what effect type of education has on nursing performance from other influential variables. Nonetheless, a number of studies on nursing practice have attempted to do so. This section reviews studies comparing performance of nurses educated in diploma, baccalaureate and associate degree programs. The review begins by examining those studies which use supervisors' ratings as the indicator of nursing practice level. Following this, studies are organized around how graduates from various programs (1) identify problems and intervene in nursing care situations, (2) perform on state board exams, and (3) are employed in nursing. Finally, studies which relate to the various graduates' attitudes toward professionalism and the impact these have on nursing practice are considered. Following the review of research, some of the more critical limitations of these studies are discussed. The section ends by synthesizing the key findings relevant to the competencies of professionally and technically prepared nurses.

Supervisory Personnel Ratings

A number of the studies done to determine the effect type of education has on nursing performance have used the ratings of supervisory personnel to indicate how the various types of nursing program graduates compare. These studies have asked head nurses,

supervisors, and directors of nursing for diploma, baccalaureate, associate degree, and/or nurses prepared on the masters degree level to rank them on various nursing practice characteristics. In general, these studies tend to support the notion that there is a difference in practice between nurses educated in different types of programs and that at least on some aspects of care, more education yields higher and more favorable ratings.

Dyer, et al. (1972) conducted a study in 31 Veterans Administration hospitals across the country to determine the relationships of various aspects of job performance to personal histories, personalities, and ward administrative climates. Two instruments were administered to assess the ratings of head nurses and supervisors on their perceptions of differences in performance between diploma, baccalaureate, and associate degree prepared staff nurses. Furthermore, the study took into account the educational preparation of those nurses who were studying for, but to date had not received, a higher degree. Head nurses completed the Nurse Performance Descriptive Scales (NPDS) and supervisors completed Descriptive Scales for Nursing Performance (DSNP). Educational level was found to be positively related to administrators' perceptions of performance on both the NPDS and the DSNP. Positive relationships at the .01 level of significance were obtained on the following characteristics:

NPDS Items (completed by head nurse)

1. Works to improve own effectiveness
2. Reads the literature and makes suggestions for improving patient care
3. Works productively on committees
4. Takes care of professional obligations
5. Identifies needs of the team
6. Plans post-hospital care

7. Works to achieve objectives of nursing service

8. Recommends needed policy changes

9. Creates learning opportunities for co-workers and subordinates

DSNP Scales (completed by supervisor)

1. Patient care competence

2. Cleverness with new ideas

3. Oral communication

4. Independent achievement desires

5. Stimulation value

6. Breadth of knowledge

7. Leadership adroitness

8. Group leadership

9. Tolerance

10. Receptiveness to change

11. Creativity

12. Overall work

13. DSNP total score

Welches, Dixon, and Standford (1974) surveyed nurses from fifteen hospitals in the San Francisco Bay Area in an attempt to determine what factors influenced nursing performance. One of the three instruments used in this study was a 19-item scale given to head nurses and supervisors to rate staff nurses. In general, uniformly low correlations were found between educational preparation and other study variables. However, the educational background of staff nurses was found to predict head nurses' ratings of performance with diploma nurses receiving higher ratings.

Howell (1978) studied how directors of nurses perceive new graduates of diploma, baccalaureate, and associate degree programs. Questionnaires were sent to the 86 hospitals in the State of Oregon asking the directors of nurses to rank the performance of new graduates from the three program types on technical bedside skills, thinking process skills, and leadership skills. In addition to considering the variables of educational preparation and nursing performance skills, he distinguished between large and small hospitals with 100 beds being the dividing point. The return rate of the questionnaire was only 58 percent, a situation which raises questions about possible sample bias. Nonetheless, he did find a difference between the director of nurses' ratings of diploma, baccalaureate, and associate degree graduates. Regardless of hospital size, directors of nurses ranked diploma graduates highest on bedside skills and baccalaureate graduates higher than associate degree graduates. Also, regardless of hospital size, baccalaureate graduates were rated across the board as best in thinking process skills. On leadership skills, directors of nursing in small hospitals had different evaluations than did those in large hospitals; those from small hospitals viewed diploma graduates as superior while those from large hospitals ranked baccalaureate graduates highest.

Waters, et al. (1972) also attempted to answer the question "Do head nurses and directors of nursing observe differences in the practice of professional and technical nurses?". Twenty-two head nurses and 12 directors of nursing were interviewed to determine their perceptions about the practice levels of 24 associate degree and 24 baccalaureate nurses. The head nurses tended to give conflicting reports, on one hand reporting a difference in the ways technical and professional nurses practice, and on the other hand, failing to be able to provide concrete examples of the differences to which they had earlier referred. In contrast, ten of the 12 directors of nursing reported explicit differences between the

nursing practice of technical and professional nurses. Technical nurses were seen to be hospital-oriented, confining their patient care to mechanical and routine aspects of patient care. Baccalaureate nurses were viewed as more independent, providing comprehensive patient care which included patient teaching and psychological support.

Petti (1975) investigated patients' as well as head nurses' ratings of diploma, baccalaureate and associate degree nurses. Eighty-three staff nurses from ten general hospitals in Massachusetts were evaluated by both medical-surgical patients and head nurses using the Slater Nursing Competencies Rating Scales. The study found that, on nine items rated by the patient and five items rated by the head nurse, diploma nurses scored better than either baccalaureate or associate degree nurses. However, on the vast majority of items, no differences were noted between diploma, baccalaureate or associate degree prepared nurses.

Finally, Nelson (1978) also addressed the question, "Do supervisors of diploma, baccalaureate, and associate degree nurses differ in their perceptions of the graduates' competencies?" The immediate supervisors of 329 registered nurses who had graduated in the 1973-74 academic year from the nine nursing education programs in North Dakota were sent the Nurse Competence Inventory (NCI). This 35-item instrument assessed perceptions of technical, communicative and administrative competency skills. The findings based on a 75 percent return were that supervisors of baccalaureate graduates rated the graduates' overall competence significantly higher ($p = .05$) than did supervisors of associate degree and diploma graduates. Furthermore, in the specific areas of technical, communicative and administrative skills, supervisors of baccalaureate nursing graduates rated baccalaureate graduates competency significantly higher ($p = .05$) than did supervisors of associate degree and diploma graduates.

In summary, these studies which assess nursing supervisory personnel's perceptions of variously prepared nurses tend to show that supervisors recognize a substantial difference in the nursing practice between diploma, baccalaureate and associate degree graduates. Moreover, supervisors' ratings of staff nurses' competencies are found more often than not to be positively related to educational level. In those instances where baccalaureate graduates are not evaluated as best, either diploma graduates are ranked highest or no differences between the variously prepared nurses are noted.

Performance in Nursing Care Situations

A large proportion of the studies concerned with determining the effect of nursing education on nursing practice has attempted to compare how graduates from the various educational programs identify problems and intervene in nursing care situations. A problem inherent to these studies has been the difficulty in devising a method to capture how nurses think and perform in a nursing care situation. Obviously, the thinking-process cannot be observed directly, and patients cannot be duplicated in actual practice settings. Consequently, these studies have had to rely heavily on indirect measures of how nurses think and act in patient care situations. This methodological constraint must be taken into account when interpreting the research results. Despite this limitation, sincere efforts have been made to assess how variously prepared nurses differ in their approaches to patient care. As will be shown, the results of these studies are highly variable.

Verhonick (1968) developed a series of five filmed sequences portraying patient situations. These were used to compare the observational perceptions and recommended actions of registered nurses, licensed practical nurses, and nursing students as well as non-nurses. The recommended actions were categorized as either supportive (those voluntary nurse actions requiring skill, knowledge, judgment, and not requiring direction from a physician),

therapeutic (those prescribed or dependent upon orders from physicians), or neither supportive nor therapeutic. Concerning observational perceptions, a positive relationship with academic preparation was noted; that is, nurses with doctorates made more relevant observations than did masters degree-prepared nurses who made more than baccalaureate nurses who made more than other-prepared nurses. Concerning recommended actions, academic preparation was inversely related to therapeutic measures and positively related to supportive measures. These findings suggest that differently educated nurses focus on different nursing problems and that higher educational yields more independent nursing actions.

Davis (1974) adapted Verhonick's film sequences to compare the clinical competence of 20 clinical specialists, 20 baccalaureate nurses and 21 diploma graduates from several midwest hospitals. After viewing the film, subjects were asked to write down both their recommended actions and their reasons for the actions. The written material was assessed for number of relevant observations, number of nursing interventions and appropriate reasons for the interventions. The conclusions of the study paralleled those of Verhonick: the quality and quantity of care provided by clinical nurse specialists were superior to those of baccalaureate nurses, and the care provided by bacclalaureate nurses was superior to that of diploma nurses.

Similarly, Frederickson and Mayer (1975) compared the differences in the way graduates of baccalaureate and associate degree programs solved nursing problems. The sample was composed of 28 graduating baccalaureate nursing students and 27 graduating associate degree students from eight nursing schools in New York City. The students viewed three filmed nursing problems and then orally described their analyses of the situations. In addition, each student was administered the Watson-Glaser Critical Thinking Appraisal, a test which assesses general problem-solving ability.

Although there was a statistically significant difference on the Watson-Glaser test, there was no significant difference in the process baccalaureate and associate degree students used in solving the simulated nursing problems.

There are at least two studies which have attempted to demonstrate with paper-and-pencil tests that baccalaureate and associate degree nurses differ in cognitive skills used to practice. Mandrillo (1969) developed a test to assess cognitive skills in relating scientific knowledge to patient problems. The test was administered to 155 graduating baccalaureate and 106 graduating associate degree nursing students enrolled in five universities and four colleges in New York City. The graduating baccalaureate students were found to score significantly higher than the associate degree students on cognitive abilities and recall of knowledge, as well as on skill in applying knowledge to four patient problems. Bassett (1976) compared the creative thinking ability and the problem-solving skill of 76 baccalaureate degree students and 84 associate degree students from six nursing programs in the State of Mississippi. Creative thinking was assessed using the Remote Associates Test and problem-solving was measured with the Nursing Performance Simulation Instrument. Although there were systematic differences in the variables in the direction expected (i.e., it was hypothesized that baccalaureate students would be more creative in thinking and better at problem-solving), no statistically significant differences were found between baccalaureate and associate degree students.

Gray, et al. (1977) attempted to differentiate between technical and professional nursing practice by comparing the responses of 22 graduating associate degree students and 22 graduating baccalaureate students to open-ended short essay questions based upon clinical nursing situations. Responses to the questions were coded as being expected of: all nurses, only technically prepared nurses, or only professionally prepared nurses. While the majority

of responses were coded as expected of all nurses, some differences were found in the following aspects of nursing care: technical skills, teaching, leadership, providing support to patients and their families, interviewing patients for assessment purposes, nursing actions in structured situations, and nursing actions following observations. Concerning the differences between technical and professional practice on the above aspects of nursing care, the authors summarized the study results by saying: "Technical practitioners showed concern for meeting patient's immediate health needs" and "although the professional practitioners have these concerns, they indicated, in addition, plans for initiation of nonprescribed nursing actions, they asked questions to ascertain from the patient possible causes for presenting problems and they anticipated long-term needs of patient and/or family. These needs were not necessarily directly related to the presenting problem and they reflected the nurse's breadth of knowledge . . . (and) leadership concerns."

Among other factors, Hover (1975) investigated the relationships between nurses' education and both their preferences for types of patients and their definitions of "good nurse." A questionnaire was administered to 54 diploma nurses, 20 baccalaureate nurses, and 29 diploma nurses who were studying for their baccalaureate degree. (These nurses were employed in three hospitals and had worked on in-patient units for at least two months.) Hover found that, as education increased, nurses preferred more active patients, in contrast to ones immobilized by attachments to medical machinery, and were more interested in providing teaching and supportive care. Furthermore, the "good nurse" definition of baccalaureate nurses more frequently included cognitive as well as technical objectives.

Highriter (1969) investigated the effect of nursing education on clinical practice by using patients' progress as an indicator of nursing care effectiveness. Patients' progress was defined as a

reduction in family health needs. With a sample of 31 baccalaureate and 30 diploma graduates, no direct relationships were discovered between the educational preparation of nurses and the progress of patients. However, an interesting finding of this study was that staff nurses regardless of their educational preparation effected better patients' progress when supervised by nurses who held master's degrees and who utilized participative leadership techniques.

Waters, et al. (1972) in addition to assessing head nurses and directors of nursings' perceptions of professional and technical nurses, observed and interviewed nurses while they practiced in the clinical setting. The sample included 24 associate degree and 24 baccalaureate nurses who were working in 13 San Francisco Bay Area hospitals. Differences were found between the variously prepared nurses in the areas of problem-solving, decision-making and scope of practice. The associate degree nurses tended to identify only problems which were concrete and specific, and their nursing actions tended to have predictable outcomes. Moreover, their identified nursing problems and interventions tended to be of a physiological, as opposed to psychosocial, nature. In contrast, a number of the baccalaureate nurses were found to extend their practice beyond the standardized approach. They were self-directed and considered patients psychological and social as well as physical needs. However, it must be noted that not all baccalaureate nurses demonstrated this expanded base for practice, a finding which the authors attributed in part to the practice settings. They observed that the majority of baccalaureate nurses who demonstrated professional behavior come from the same hospital. This hospital had the highest proportion of baccalaureate nurses on staff and the director of nurses openly encouraged professional practice.

Finally, as part of a larger study, Haussmann, Hegyvary, and Newman (1976) examined the effect the type of nursing education had on the quality of nursing performance by directly observing nurses in patient care settings. The sample for this aspect of the larger study included eight diploma nurses, five associate degree nurses and 16 baccalaureate nurses. Diploma nurses scored higher than baccalaureate or associate degree nurses in their formulations of nursing care plans. At the same time, baccalaureate graduates scored higher than did diploma and associate degree nurses in their attention to non-physical needs and evaluations of nursing care achievements.

In summary, the studies aimed at demonstrating how nurses prepared in diploma, baccalaureate, and associate degree programs differ in their approaches to nursing practice are far from conclusive. A tally of the study results reviewed here show three studies demonstrating no significant differences between baccalaureate and associate degree prepared nurses (Highriter, 1969; Frederickson and Mayer, 1975; Basset, 1976), four studies supporting the idea that baccalaureate nurses perform better than other nurses (Mandrillo, 1969; Davis, 1974; Hover, 1975; Gray, et al., 1977), two studies supporting the idea that diploma nurses and baccalaureate nurses perform better in different aspects of patient care (Waters, 1972; Haussmann, et al., 1976), one study merely concluding that more education yields improved nursing care (Verhonic, 1968), and two studies demonstrating the value of master's degree prepared nurses in effecting better nursing practice (Highriter, 1969; David, 1974).

In spite of these partially contradictory findings, the overall opinion of the researchers represented by these reports and articles still seems to lie with the idea that a difference exists in the quality of practice between diploma, associate degree, and baccalaureate prepared nurses and that baccalaureate nurses provide more comprehensive nursing care than do technically prepared

nurses. For example, Frederickson and Mayer (1975) attributed their lack of statistical significance between associate degree and baccalaureate nurses in part to small sample size. Haussmann et al. warned that their results should be interpreted with care since the sample was small and the observed nurses worked under such different conditions that these might have overshadowed the effects of education on practice. Petti (1975) suggested that the study instrument might have been the reason baccalaureate nurses were not found to be superior; it did not strongly focus on social support and leadership aspects of nursing care and therefore did not fully assess the areas in which baccalaureate nurses are thought to be best prepared.

Thus, it is difficult to make a definitive statement about the effect the type of nursing education has on performance in nursing care situations. Research studies provide conflicting evidence. Yet, in those instances where studies fail to demonstrate a significant difference between the quality of care provided by professionally and technically prepared nurses, researchers tend to question the validity of their findings and suggest that if their methodologies were improved an important difference might be found.

Performance on State Board Exams

State Board Exams are administered to all aspiring nurses to ensure that in their educational preparation they achieved the minimal competency level to safely practice nursing. Regardless of this purpose for the tests, one method that has been employed to assess the differences between variously prepared nurses has been to compare how they score on State Board Licensing Exams. The assumption underlying this approach to discerning the differences between variously educated nurses is that State Board Exams are a valid measure of difference in competency levels. In other words, it is assumed that the higher nurses score on State Board Exams, the better they will perform in patient care settings. While this

assumption is rarely questioned, a number of studies have shown that even though State Board Exams are appropriate for distinguishing between competent and incompetent nurses, they are inappropriate for making finer discriminations about the quality of care nurses will deliver. In light of this, the following paragraphs look first at how variously prepared nurses compare on State Board Exams and then at two studies which have raised questions about the validity of using State Board Exams, to indicate the differences nurses will demonstrate in practice settings.

In 1958, Jessee reported that baccalaureate graduates scored highest on all five sections of the State Board Exams. However, in more recent years, a different pattern has emerged. Out of 800 possible points, diploma school graduates have had the highest percentage of those who score over 600 on the Medical, Surgical, Obstetrical and Pediatric sections of the exam. Baccalaureate graduates have maintained their high standing only on the psychiatric section of the test, having the largest percentage of those who score over 600 (Schwrian, 1977).

To those who assume that State Board Exams are a valid measure of many levels of nursing performance and who believe that baccalaureate graduates are better prepared to meet the wide range of complex patient needs, these findings have been puzzling. However, in the attempt to explain the results, at least two rationales have been offered. The ability of baccalaureate prepared nurses to consistently score high on the psychiatric portion of the test has been seen to reflect the emphasis their education places on psychosocial skills. The competitive scores of nurses prepared in diploma and associate degree programs have been interpreted to reflect their schools' focused effort to nurture test-taking abilities.

Although it has been popular practice to use State Board Exam scores as an indicator of how nurses will perform in clinical situations, studies have shown that this practice might not be sound.

Dubs (1975) investigated the relationship between employers' ratings of diploma graduates and scores on State Board Exams. Admittedly, the study had many limitations; such as, it considered only the graduates from one class, and the tool used to evaluate employers' perceptions was based solely on the individual school's objectives. However, the significant findings of the study ($p = .05$) showed only a small relationship between employers' ratings and students' performance on State Board Exams in the areas of comprehensive nursing care, health teaching, and maturity and initiative. In other words, State Board Exams proved to be a poor indicator of how nurses would perform in clinical settings as perceived by employers.

Along a similar vein, Behm and Warnock (1978) studied the relationship between the relative effectiveness of 13 Washington State Associate Degree programs and the average scores their students received on State Board Exams. The effectiveness of the associate degree programs was rated by 102 directors of nursing, associate degree nursing educators, and state board members. In the attempt to establish a relationship between program effectiveness and scores on State Board Exams, only a small, and more important, nonsignificant positive relationship could be found. These researchers recommended that state and federal agencies should not use State Board Exams as a composite measure of educational program effectiveness and, instead, should use these examinations only as an assessment of the minimum competency of individual nurses.

In summary, performance on State Board Exams is frequently used to denote the difference in clinical performance between diploma, baccalaureate, and associate degree prepared nurses. If one opts to believe that State Board Exam scores are valid predictors of how nurses will perform in practice settings, diploma graduates are the preferred type of nurse on all but psychiatric units. If one questions the ability of State Board Exams to assess any more than minimal competency levels, the test provides at most,

very limited insight into how well nurses will perform in patient care situations.

Types of Employment Positions

Another method employed to ascertain the effect of educational preparation on nursing performance has been to compare the types of employment positions differently educated nurses assume. The rationale for these studies has been that if there is a difference between professional and technical nursing education, this difference should be reflected in the types of positions graduates of the various programs hold. In other words, baccalaureate nurses should be employed in positions which require professional nursing competencies, and associate degree and diploma nurses should be employed in positions which require technical nursing competencies. Moreover, professionally prepared nurses should more frequently advance to those positions which require self-directive and leadership abilities. While limited in number, the studies reviewed here seem to indicate that although there is a great deal of overlap, there are some significant differences in the types of positions differently educated nurses hold.

Hunt (1974) surveyed a random sample of California nurses to determine if diploma, baccalaureate, and associate degree nurses were interchangeable in employment positions. He concluded that associate degree and diploma nurses were interchangeable; they were paid the same wage and their job position distributions were comparable. However, diploma nurses would not substitute for baccalaureate nurses. Although they were paid similar wages, the types of positions they held were markedly different.

Knopf (1975) assessed the types of positions nurses were holding five years after graduation. Table 2 (Knopf, 1975, p. 16) summarizes the nursing positions held by differently prepared nurses.

Table 2--Type of Nursing Position by Educational Background Five Years After Graduation

Position	Associate Degree	Diploma	Bacca-laureate
*Staff Nurse	57.3%	61.9%	44.7%
Staff and Head Nurse	1.7	0.6	0.8
*Head Nurse	17.1	15.8	12.3
Supervisor	6.4	5.3	5.0
*Teacher of Nurses	4.0	4.6	16.2
*Administrator	1.6	1.2	4.5
Consultant	0.1	0.3	0.8
Researcher	0.2	0.2	0.5
Private Duty	2.1	1.8	1.9
*Doctor's Assistant	4.6	4.0	2.4
*Clinical Specialist	0.1	0.2	3.8
Other Positions	2.3	2.6	3.6
Two Positions	2.0	1.0	3.3
Invalid Response	0.5	0.4	0.2
TOTAL	100.0%	100.0%	100.0%

*Denotes position for which there is substantial difference in percent distribution of nurses by educational background.

As can be seen, the majority of nurses, whether prepared in diploma, associate degree, or baccalaureate programs, were employed in staff nurse and head nurse positions. However, a larger percentage of associate degree (76.1%) and diploma graduates (78.3%) than of baccalaureate graduates (57.8%) were in these positions. In contrast, a larger percentage of baccalaureate graduates (20.7%) assumed teaching and administrative positions than did associate degree (5.6%) and diploma nurses (5.8%). These findings tend to show that while in many instances diploma, associate degree, and baccalaureate nurses hold similar positions, baccalaureate nurses are more prone to advance to administrative and teaching positions.

Knopf (1975) also compared the types of employment settings in which variously prepared nurses were working. While these findings may seem tangential to the discussion at hand, in nursing circles, positions in public health nursing, school nursing, and nursing education are often seen as requiring more self-direction, independence, and initiative than positions in hospitals. On the basis of this, studies indicate that baccalaureate nurses, who have had these qualities especially fostered in their educational programs, more often will work in these positions of higher responsibility. Table 3 (Knopf, 1975, p. 18) supports this conclusion.

Table 3--Employer of Nurses by Educational Backgrounds Five Years After Graduation

Employer	Associate Degree	Diploma	Baccalaureate
*Hospital	72.6%	74.1%	51.0%
*Nursing Home	3.3	4.3	1.9
*Public Health Agency	4.3	2.2	13.2
*School, Public or Private	1.9	1.4	5.0
*School or Nursing	2.4	3.1	12.9
Industry	1.3	2.0	1.0
Military	-	1.7	2.0
Private Patient	2.1	1.7	2.0
Doctor or Dentist	8.2	7.0	4.7
Other Type	1.8	1.6	3.8
Two Employers	1.9	1.0	2.5
Invalid Response	0.1	0.1	-
TOTAL	100.0%	100.0%	100.0%

*Denotes employer for which there is substantial difference in percent distribution of nurses by educational background.

Five years after graduation, the vast majority of associate degree (72.6%) and diploma (74.1%) graduates, in contrast to baccalaureate graduates (51.0%), were employed in hospitals. At the same time,

31.1% of the baccalaureate graduates were employed in public health agencies, schools, and schools of nursing in contrast to only 8.6% of the associate degree graduates and 6.7% of the diploma graduates. If employment in these agencies is viewed to require the competency skills of professionally prepared nurses, one might conclude that baccalaureate education does provide unique nursing skills and these skills result in the substantially larger proportion of baccalaureate nurses in these positions. However, this conclusion must be accepted with some caution. The high proportion of baccalaureate nurses in these positions might not reflect their educational preparation as much as it reflects the stand of their employers to place in them only baccalaureate nurses.

In summary, the attempt to determine the effect of nursing education on performance by using type and level of employment position has produced incomplete results. On a number of accounts, diploma, baccalaureate, and associate degree nurses seem to hold similar positions. However, from only job titles, it is impossible to determine if the variously prepared nurses perform differently in these positions. There is some evidence that baccalaureate nurses in greater numbers assume what are thought to be more responsible nursing positions. However, it must be questioned if this occurs because they indeed possess unique nursing skills or because employers merely think they do. Thus, type and level of job position better serve as indicators of the effect education has on nursing practice when they are used in conjunction with other studies that more directly measure nursing performance.

Attitudes Toward Practice

The final group of studies to be reviewed are somewhat diverse in focus. They are related loosely in that they consider the attitudes variously prepared nurses hold on professionalism and nursing practice and the relationship of these to job satisfaction. Admittedly, these studies are powerless in demonstrating the effect that the type of education has on actual nursing performance.

However, they are discussed here for two reasons. First, considering the controversy over the existence of both professional and technical nursing practice, it is of interest to see if diploma, baccalaureate, and associate degree nurses rate their competencies differently. Second, there has been some indication that nurses who assume a high professional role orientation are more likely to leave nursing practice because they are unable to achieve sufficient job satisfaction. Therefore, it seems important to consider how diploma, baccalaureate and associate degree nurses compare in professionalism, attitudes toward work, and job attrition.

Melies and Farrell (1974) addressed the issue of how variously prepared nurses rate their competencies as part of a more encompassing study. They tested 188 students from three baccalaureate, one associate degree and two diploma schools in the San Francisco area for intellectual characteristics, leadership ability, research orientation, and sociopsychological factors. Only 59% of the students asked to participate did so, and baccalaureate students had an especially low cooperation rate (46%). In spite of these sampling limitations, the study had some interesting findings. On many variables, students from the three types of programs were found not to differ. However, baccalaureate students did evaluate themselves significantly higher than did other senior nursing students in their abilities to achieve in communication and in areas related to administration and supervision.

Smoyak (1972) compared the self-ratings of diploma and baccalaureate nurses after six months in practice. All subjects were working in staff nurse positions in hospitals. In contrast to the previous study results, she found no significant differences between the self-ratings of baccalaureate and diploma graduates.

Finally, Nelson (1978) also investigated whether or not variously educated nurses differ in their perceptions of their competencies. The sample consisted of 429 nurses who graduated from the four baccalaureate, two associate degree and three diploma schools

in North Dakota. Subjects were asked to rate themselves on technical, communicative and administrative skills. Diploma graduates were found to significantly rate themselves higher than others on overall competence, technical skills and administrative skills. In contrast, baccalaureate graduates were found to rate themselves significantly higher than others on communicative skills. Moreover, associate degree nurses were found to rate themselves significantly lower than others on all measures.

Thus, there is evidence to suggest that variously educated nurses rate their competencies differently. In general, baccalaureate graduates identify themselves as stronger in communicative skills than do other nurses. In contrast, the findings on administrative competencies are inconsistent: diploma nurses and baccalaureate nurses rate themselves the highest. However, associate degree nurses uniformly rate themselves lowest.

Changing direction, Kramer (for example, 1974), has been instrumental in making nurses aware that a high professional role orientation can be distressing in some instances. She has pointed out that nurses educated along professional lines place high value on individualized, comprehensive patient care provided by well-qualified practitioners. Moreover, these nurses emphasize decision-making and problem-solving skills. While this sounds good in itself, organizations often require nurses to delegate parts of their work to lesser trained personnel and to submit to external supervision in the interest of maximum agency functioning. Consequently, conflict results when nurses who have taken on a high professional role orientation become employed in organizations which demand a division of labor. Moreover, there has been indication that nurses who do not resolve this conflict are more apt to leave nursing. For example, in a study of 220 baccalaureate nurses, Kramer and Baker (1971) observed that approximately one-half had left hospital nursing and one-third had left nursing altogether. The highest dropout rate was among graduates with a high professional role orientation.

In light of these findings, it has been of interest to see how graduates from the different educational programs compare in professionalism and job satisfaction. Hurka (1971) studied 81 baccalaureate, 159 diploma, and 20 associate degree graduates employed in four metropolitan hospitals. The professional orientation scores of baccalaureate graduates were found to be higher than diploma or associate degree graduates, but not significantly so. In addition, professional role orientation was found to be positively related to job satisfaction but not to satisfaction with nursing as a career.

Richards (1972) addressed the question, "Do graduating associate degree, diploma, and baccalaureate students significantly differ in intelligence, personality characteristics (such as leadership potential, responsibility, emotional stability) and degree of professionalism?". Her sample included all 361 students in three diploma, five associate degree, and four baccalaureate schools of nursing in three western states. While she found no statistically significant difference on intelligence and personality scores, she did discover that baccalaureate students held a more professional ideal of nursing for themselves than did other nurses.

Goff (1973) studied the relationships between nursing education, nurses' image of nursing and job satisfaction. Using 875 diploma and baccalaureate nurses in the U.S. Air Force, the study concluded that for diploma nurses, the image of nursing in the first two years of practice does not differ from that in subsequent years. For baccalaureate nurses, the image of nursing begins much higher than for diploma nurses but, by the beginning of the third year in practice, has adjusted to the same level. Despite the differences in image of nursing, both groups of nurses had similarly lower levels of job satisfaction in the first two years of practice and higher levels thereafter.

Boyd (1975) investigated whether job satisfaction was higher for baccalaureate or nonbaccalaureate nurses. The Job Factor Questionnaire and the Job Description Index were administered to 103 baccalaureate nurses and 198 nonbaccalaureate nurses. No relationship was found between education and job satisfaction.

Finally, McCloskey (1974) investigated the reasons why 94 nurses resigned from their positions in hospitals. In this study, psychological rewards were found to be more important than salary in retaining nurses. However, no differences in attrition were found by type of education preparation.

In summary, in recognition of the debate over the existence of both professional and technical nursing practice, three studies were reviewed to ascertain if diploma, baccalaureate, and associate degree nurses rate themselves differently on selected competencies. One study showed no differences, while the other two found significant variations in the ways variously educated nurses rated themselves. Moreover, in those that found differences, baccalaureate and diploma graduates vied for top ratings among the measured competencies, while associate degree graduates consistently rated themselves lowest. To reiterate, these findings do not demonstrate that variously educated nurses actually practice nursing differently. At most, they can be interpreted as giving some indication that type of education affects the way in which nurses perceive their own performance.

Concerning the impact that type of education has on professionalism, job satisfaction, and job attrition, there is some indication that these variables interact. However, it has not been shown to what extent. In general, baccalaureate graduates tend to score higher than other nurses on measures of professionalism, even if not always significantly. However, the effect this has on job satisfaction is not clear. From the studies reviewed here, it seems that if high professionalism does lead to job dissatisfaction, this might be only a temporary reaction and diminish over time. Finally,

type of educational preparation when considered alone does not seem to be a good predictor of nurses' employment attrition. Undoubtedly, there is need for further study to establish how educational preparation, professionalism, job satisfaction, and job attrition interrelate.

Comments on Study Designs

To date, the number of studies which have found statistically significant differences in nursing practice related to nursing education have been limited. Admittedly, many have found no overall effect. Throughout the research review, a number of comments were made on study limitations which feasibly could have influenced the results. In addition to those, two interrelated factors must be taken into account as highly probable reasons that the effects of education frequently were obscure:

- Number of variables related to nursing performance. Dozens of variables have been shown in various studies to affect the persons who elect nursing, their performance in nursing programs, their performance on State Board examinations, and their performance in practice. While this chain of relationships has yet to be mapped precisely, the number of influential variables is such that any definitive study of them must necessarily have either a very large number of nurses involved or controls must be developed on all but the variables of interest.

- Limitations of existing studies. While some studies of the impact of nursing education on performance have been carefully designed and performed, none has been able to either incorporate a large enough sample to make it likely that effects of confounding variables are excluded or to control for these confounding variables. In the best instance, studies as that by Dyer and others (1972) have been conducted in a special setting (Veterans Administration Hospital System) which probably tended to control for a number of variables and allow a better assessment of the effects of education.

In light of the above, the fact that findings of so many of the summarized studies were significant suggests that an important educational influence is operative in nursing practice. The following paragraphs synthesize the probable character of these influences.

Key Findings and Competencies

While not always apparent in the reviewed studies, the issue confronting nursing is not "Who are the best overall nurses?" Rather, the question nursing is striving to answer is "Are there two categories of nurses in practice and, if so, can the distinction between the two be made on the basis of education?". Thus, while the findings of many studies were presented in terms of "best nurse," that is not the issue to be addressed here. Instead, this section contemplates the study findings in terms of the competencies ascribed to professional and technical nurses. In addition, it considers the contribution of masters prepared nurses to overall nursing practice.

A review of the findings shows that the performance of associate degree and diploma nurses is differentiated from that of baccalaureate nurses in several ways. In general, associate degree and diploma graduates are initially equal to or superior to baccalaureate nurses in the competencies concerning certain routine clinical nursing activities. Their training has been shorter and more task oriented, focusing on basic skills and technical care delivery. The result is that they know clinical procedures better than the baccalaureate nurse, and this is reflected on State Board examination scores, particularly for the dipoma nurse who knows procedures both from academic repetition and from practice. This structured learning carries over to superior preparation of care plans and to performance on a general nursing competency scale. Because initial performance of diploma and associate degree graduates is equal to or superior to that of baccalaureate graduates in the routine clinical activities customarily assigned to new nurses,

these technical nurses feel more initial job satisfaction than professional nurses.

In contrast, baccalaureate nurses tend to outperform diploma and associate degree nurses in activities requiring leadership, psychosocial patient supports and problem-solving. After the initial period of orientation to practice, the clinical skills of baccalaureate nurses equal those of the technically trained nurses. In terms of coordinative ability, innovation, initiative, breadth of knowledge, professional role orientation, followup of activities, quantity and quality of care produced, ability and skill in applying knowledge to problems, and critical thinking, there is some evidence that baccalaureate nurses are superior to diploma and associate degree nurses. Because of the transition from an academic to a clinical setting initially having less nursing possibilities than the baccalaureate graduate expects, the initial job satisfaction is lower than that of the diploma and associate degree graduates, and lower than that of the baccalaureate nurse after the third year or nursing.

In comparison to professional and technical competencies, advanced nursing education provides its own unique positive influence upon nursing care. Masters nurses direct groups of nursing units (as supervisors) to provide better care, operate nursing units (as head nurses) to delivery better care, and provide better nursing care themselves (as clinical specialists) than lesser-trained nurses. These differences have been found for quantity and quality of patient care measured various ways and for patient progress itself. Specific characteristics in which differences have been measured included patient assessment, leadership capability, psychosocial support, independent functioning, breadth of knowledge, receptivity to change, planning capability, and a number of others.

The above distinctions between the competencies associated with variously educated nurses are undoubtedly more clear cut than

have been demonstrated in research. It must be remembered that those studies attempting to clearly delineate the differences between technical and professional nursing found that each type of nurse performs most identified activities but in different proportions. However, given the increasing complexity of nursing with more specialized physician and ancillary services, more specialized nurses, increased use of technical equipment, more emphasis on recording details of care because of liability considerations, it seems likely that the division of labor between professional and technical nurses will become both more necessary and more apparent. Recently, the Western Interstate Commission for Higher Education completed a project to estimate the requirements for nursing personnel at national and state levels through 1982 (Lum and Leonard, 1978). In looking five years to the future, the panel of experts took into account the idea that diploma and associate degree nurses hold similar competencies and recommended that these nurses provide service in areas where standardized protocols are required, while nurses with baccalaureate and higher degrees provide service where protocols are more complex and less standardized. Furthermore, acknowledging the increasing complexities of providing health care, the panel projected the need to substantially increase the proportion of baccalaureate and higher degree prepared nurses.

In sum, the commitment of nursing to support the differentiation between professional and technical nursing practice was recently demonstrated at the American Nurses Association Convention (June 1978). Resolutions were passed that two categories of nursing practice be clearly identified and titled by 1980 and that by 1985, the baccalaureate degree in nursing be a minimum preparation for entry into professional nursing practice. The potential implications of this resolution are many, one of which is that nurses must more carefully delineate the specific content of professional and technical nursing education. As the scope of nursing enlarges, there will be the highly qualified nurses who can direct

their attentions largely to keeping abreast of the rapidly expanding technical skills associated with quality nursing care. This ability has been found to strongly characterize diploma and associate degree nurses. Also, there will be the need for nurses to serve in more of a coordinative and leadership capacity. Serving this coordinative function requires the skills of leadership, initiative, goal orientation and problem-solving, skills which have been more strongly associated with baccalaureate nurses. Moreover, key roles that have been assumed to increasing numbers of masters prepared nurses are those of clinical specialist, head nurse, and supervisor. As the responsibilities of nursing expand and become more complex, nurses prepared at the graduate level can add considerable strength to the practice quality of both professional and technical nurses.

SECTION IV

SUMMARY

Currently, professional nurses are prepared in three distinct types of educational programs: diploma, baccalaureate, and associate degree. While these programs differ on a number of accounts, graduates of all three are accorded the title of "professional nurse" and are held legally responsible for having equivalent nursing knowledge.

Members of the nursing profession now are making plans to alter this practice by differentiating more precisely among nurses, based upon educational preparation. The proposed change is to reorganize nursing into two groups: professional nurses and technical nurses. The title of professional nurse would be reserved for graduates of baccalaureate programs. More importantly, the two categories of nurses would be held responsible for different competencies.

The direction that nursing is taking raises the question of the effects of different educational programs on nursing performance. A number of studies have attempted to answer this question by comparing the nursing practice of diploma, baccalaureate, and associate degree graduates. The results of these studies have been inconsistent. However, in general, it seems that the differently prepared nurses perform most identified nursing activities, but in different proportions. That is, diploma and associate degree nurses are more likely to focus on basic skills and technical care delivery, while baccalaureate nurses are more likely to engage in activities requiring leadership, patient psychosocial supports, and problem-solving. Moreover, there is some evidence that differently prepared nurses assume different nursing positions, with baccalaureate nurses being more apt to work in administration, education and public health nursing.

The above distinctions between the competencies associated with variously educated nurses are undoubtedly more clear cut than have been demonstrated in research. However, given the increasing complexity of nursing with more specialized physician and ancillary services, more specialized nurses, increased use of technical equipment, more emphasis on recording details of care because of liability considerations, it seems likely that the division of labor between professional and technical nurses will become both more necessary and more apparent.

There will be the need for highly qualified nurses who can direct their attentions largely to keeping abreast of the rapidly expanding technical skills associated with quality nursing care. This ability has been found to strongly characterize diploma and associate degree nurses. Also, there will be the need for nurses to serve in more of a coordinative and leadership capacity. Serving this coordinative function requires the skills of leadership, initiative, goal orientation and problem-solving, skills which have been more strongly associated with baccalaureate nurses. Moreover, key roles that have been assumed in increasing numbers by masters prepared nurses are those of clinical specialist, head nurse, and supervisor. As the responsibilities of nursing expand and become more complex, nurses prepared at the graduate level can add considerable strength to the practice quality of both professional and technical nurses.

BIBLIOGRAPHY

American Nurses' Association.
1965 Educational Preparation for Nurse Practitioners and Assistance to Nurses: A Position Paper. New York.

_____.
1978 "Entry into Practice Resolution." Nursing Outlook 26(8): 505.

_____.
1977 Facts About Nursing 76-77. Kansas City, Missouri.

Aydelott, Myrtle K.
1962 "Use of Patient Welfare as a Criterion Measure." Nursing Research 11: 10-14.

Bailey, June.
1966 "New Approaches to Curriculum Development." Nursing Outlook 14: 33-5.

Bassett, Marion Blumer.
1977 "The Creative Thinking Ability and Problem-Solving Skill of Associate and Baccalaureate Degree Nursing Students." University of Alabama, Dissertation Abstracts International 37: 6052B.

Becker, G.S.
1965 Human Capital: A Theoretical and Educational Analysis with Special Reference to Education. New York.

Behm, Robert J. and Florence N. Warnock.
1978 "State Board Examinations and Associate Degree Program Effectiveness." Nursing Research 27: 54-6.

Bensman, Peggy A.
1977 "Have We Lost Sight of the AD Philosophy?" Nursing Outlook 25: 511-3.

Boyd, Norma Jean.
1976 "Educational Level as a Predictor of Job Satisfaction for the Registered Nurse." University of Maryland, Dissertation Abstracts International 37: 695B.

Bridgeman, Margaret.
1953 Collegiate Education for Nursing. New York: Russell Sage Foundation.

Brown, Esther L.
1948 Nursing for the Future. New York: Russell Sage Foundation.

Committee on Nursing and Nursing Education in the United States.
1923 Nursing and Nursing Education in the United States. Josephine Goldmark, New York: The McMillan Company.

Davis, Carolyn K.
1975 Relation of University Preparation to Nursing Practice. New York: National League for Nursing, Publication Number 15-1583.

Davis, Gail Roberta Comer.
1972 Differentiation of Nursing Education Programs Through Identification of Nursing Functions. Texas Tech University, Unpublished Doctoral Dissertation.

Dubs, Regina.
1975 "Comparison of Student Achievement with Performance Rating of Graduates and State Board Examination Scores." Nursing Research 24: 57-68.

Dyer, Elain D., Maxine J. Cope, Mary Adele Monson, and Jennie B. Van Drimmelen.
1972 "Can Job Performance be Predicted from Biographical, Personality, and Administrative Climate Inventories?" Nursing Research 21: 294-304.

Frederickson, Keville Conrad and Gloria Helen Gilbert Mayer.
1975 "Problem-Solving by Nursing Students: A Twin Study." New York: Columbia University, Dissertation Abstracts International 35: 5966B.

Ghiselli, E.E.
1969 "Managerial Talent" in The Discovery of Talent, D. Wolfe, Cambridge, Massachusetts.

Ginzberg, Eli.
1948 A Program for the Nursing Profession. New York: McMillan Co.

Goff, Joseph Henry.
1973 "The Image of Nursing and Job Satisfaction of United States Air Force Nurses." North Texas State University, Dissertation Abstracts International 34: 1607B.

Gray, Judith E., Barbara L.S. Murray, Judith F. Roy and Janet R. Sawyer.
1977 "Do Graduates of Technical and Professional Nursing Programs Differ in Practice?" Nursing Research 26: 368-373.

Hanock, G.
1967 "An Economic Analysis of Earnings and Schooling." Journal of Human Resources 2: 310-329.

Haussmann, R.K. Dieter, Sue T. Hegyvary, and John F. Newman, Jr.
1976 Monitoring Quality of Nursing Care: Part II - Assessment and Study of Correlates. Washington: U.S. Department of Health, Education and Welfare.

Highriter, Marion E.
1969 "Nurse Characteristics and Patient Progress." Nursing Research 18: 485-500.

Hover, Julie.
1975 "Diploma Vs. Degree Nurses: Are They Alike?" Nursing Outlook 23: 684-7.

Howell, Farley J.
1978 "Employers' Evaluations of New Graduates." Nursing Outlook 26: 448-51.

Hunt, Howard Allen.
1974 Registered Nurse Education and the Registered Nurse Job Market. Washington: Manpower Administration, Office of Research and Development, Publication Number DIMA-91-06-73-23-1.

Hurka, S.J.
1971 "The Registered Nurse as a Professional Employee: A Study of Perceived Role Orientations." Seattle, Washington: University of Washington. Dissertation Abstracts International 31-3655-A.

Jelinek, Richard C. and Lyman C. Dennis II.
1976 A Review and Evaluation of Nursing Productivity. Volumes I-II, Washington: U.S. Department of Health, Education, and Welfare, DHEW Publication Number (HRA) 77-15.

Jessee, Ruth W.
1958 "Comparative Study of Fully Accredited Basic Nursing Programs." Nursing Research 7: 1-0-112.

Johnson, Dorothy E.
1966 "Competence in Practice: Technical and Professional." Nursing Outlook 14: 30-3.

Jones, Carolyn W.
"Why Associate Degree Nursing Students Persist." Nursing Research 24: 57-59.

Knopf, Lucille.
1975 RN's One and Five Years After Graduation. New York: National League for Nursing.

Kovacs, Alberta R.
1970 "Uniform Minimum Admissions Standards." Nursing Research 18: 54-56.

Kramer, Marlene.
1974 Reality Shock: Why Nurses Leave Nursing. St. Louis: C.V. Mosby Co.

Kramer, Marlene and Constance Baker.
1971 "The Exodus: Can We Prevent It?" Journal of Nursing Administration 1: 15-30.

Lee, Anthony.
1979 "NO!" RN 42(1): 83-93.

Lum, Jean L. J.
1978 Analysis and Planning for Improved Distribution of Nursing Personnel and Services. Panel of Expert Consultants: Final Report. Boulder, Colorado: Western Interstate Commission for Higher Education.

Mandrillo, Margaret P.
1970 "A Comparative Study of the Cognitive Skills of the Graduating Baccalaureate Degree and Associate Degree Nursing Students." New York: Columbia University, Dissertation Abstracts International 30: 4222B.

Mantheny, Ruth.
1967 "Technical Nursing Practice." in Department of Baccalaureate and Higher Degree Programs, Shifting Scene - Directions for Practice. New York: National League for Nursing, p. 17-25.

McCloskey, Joanne.
1974 "Influence of Rewards and Incentives on Staff Nurse Turnover Rate." Nursing Research 23: 239-247.

McKenna, Marion Elizabeth.
1970 Differentiating Between Professional Nursing Practice and Technical Nursing Practice. University of Florida, Unpublished Doctoral Dissertation.

Meleis, Afaf Ibrahim and Kathleen McConnel Farrell.
1974 "Operation Concern: A Study of Senior Nursing Students in Three Nursing Programs." Nursing Research 23(6): 461-7.

Michelmore, Ellen.
1977 "Distinguishing Between AD and BS Education." Nursing Outlook 25: 506-510.

Muhlenkamp, Ann F.
1971 "Let's Examine - Prediction of State Board Scores in a Baccalaureate Program." Nursing Outlook 19: 57.

National Commission for the Study of Nursing and Nursing Education.
1970 An Abstract for Action. Jerome P. Lysaught, Director. New York: McGraw-Hill Book Co.

_____.
1973 From Abstract Into Action. Jerome P. Lysaught, Editor. New York: McGraw-Hill Book Co.

National League of Nursing Education.
1932 An Activity Analysis of Nursing, A Report Prepared by the Department of Studies. New York: National League of Nursing Education.

Nelson, Lois F.
1978 "Competence of Nursing Graduates in Technical, Communicative, and Administrative Skills." Nursing Research 27(2): 121-5.

Nutting, Adelaide.
1912 Educational Status of Nursing. United States Bureau of Education, Bulletin No. 7.

Ohlson, Virginia M.
1977 "Baccalaureate Nursing Education in the United States." International Nursing Review 24: 168-70.

O'Neil, Patricia M. and George F. Madaus.
1966 "Differences in Interest Patterns Between Graduates of Diploma and Basic Collegiate Programs in Nursing." Journal of Counseling Psychology 13: 300-305.

Peterson, O.L. et al.
1956 "Analytical Study of North Carolina General Practices." Journal of Medical Education 31: 71.

Petti, Elizabeth R.
1975 "A Study of the Relationship Between the Three Levels of Nursing Education and Nurse Competency as Rated by Patient and Head Nurse." Massachusetts: Boston University, Dissertation Abstracts International 35: 12A.

Richards, Mary Ann Bruegel.
1972 "A Study of Differences in Psychological Characteristics of Students Graduating from Three Types of Basic Nursing Programs." Nursing Research 21: 258-261.

Rines, Alice R.
1977 "Associate Degree Education: History, Development and Rationale." Nursing Outlook 25: 496-501.

Schlotfeldt, Rozella M.
1977 "Educational Requirements for Registered Nursing." in Entry into Registered Nursing - Issues and Problems. New York: National League for Nursing, Publication Number 23-1685.

Schwirian, Patricia M.
1977 Prediction of Successful Nursing Performance: Part I and Part II. Washington: U.S. Department of Health, Education and Welfare, DHEW Publication No. (HRA) 77-27.

Tschudin, Mary S.
1964 "Educational Preparation Needed by the Nurse in the Future." Nursing Outlook 12: 32-5.

Thurow, L.D.
1968 "The Occupational Distribution of the Returns to Education and Experience for Whites and Negroes." Proceedings of American Statistical Association, Social Statistics Section, Washington, D.C.

Verhonick, Phyllis J., G.A. Nichols, B.A. Glor, and R.T. McCarthy.
1968 "I Came, I Saw, I Responded: Nursing Observation and Action Survey." Nursing Research 17: 38-44.

Waters, Verle H., Shirley S. Chater, Mary Louise Vivier, Judith H. Urrea and Holly Skodol Wilson.
1972 "Technical and Professional Nursing: An Explanatory Study." Nursing Research 21: 124-31.

Weisbrod, B.A. and P. Karpoff.
1968 "Monetary Returns to College Education, Student Ability and College Quality." Review of Economic Statistics 50: 491-497.

Welches, Lois J., F.A. Dixon and Elinor D. Stanford.
1974 "Typological Prediction of Staff Nurse Performance Rating." Nursing Research 23: 402-402.

Wise, David A.
1975 "Academic Achievement and Job Performance." American Economic Review 65: 350-366.

U.S. GOVERNMENT PRINTING OFFICE 1979 - 281-067/251